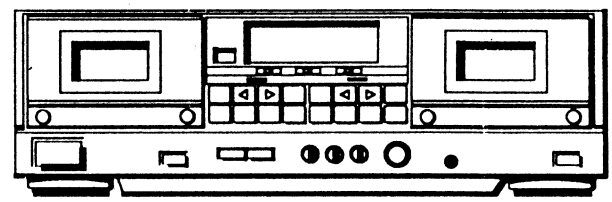
S/M Code No.89-064 DATE OF ISSUE 9/1989-I

AIWA®

AD-WX777

SERVICE MANUAL



STEREO CASSETTE DECK

• BASIC TAPE MECHANISM : α – 14 • TYPE. H,U,C,E,K,Z

SPECIFICATIONS

Type	Stereo cassette tape deck
Track format	4 tracks, 2 channels
Power supply	AD-WX777E, Z AC 220 V, 50/60 Hz AD-WX777K AC 240V, 50/60 Hz AD-WX777U, C AC 120 V, 60 Hz AD-WX777H AC 120 V/220 V/240 V switchable, 50/60 Hz
Power consumption	23 W
Frequency response	METAL tape: 20–18,000 Hz CrO_2 tape: 20–17,000 Hz NORMAL tape: 20–16,000 Hz
Signal-to-noise ratio	73 dB (METAL tape DOLBY C NR ON)
Wow and flutter	Deck 1 (P.B.) 0.12% (According to DIN 45500) 0.065% (WRMS) Deck 2 0.18% (According to DIN 45500) 0.065% (WRMS)
Tape speed	4.8 cm/sec. ($1\frac{7}{8}$ ips), 9.5 cm/sec (Double speed)
Recording system	AC bias (frequency 108 kHz)
Erase system	AC erase
Motor	DC Servomotor × 2
Heads	Record/playback head × 1 Playback head × 1 Erase head × 1
Inputs	LINE IN maximum input sensitivity: 50 mV (over 50 kΩ)
Outputs	LINE OUT standard output level: 360 mV (0 VU); suitable load impedance: over 50 kΩ
Dimensions	430(W) × 140(H) × 313(D) mm
Weight	5.2 kg

- Design and specifications are subject to change without notice.
- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
- Dolby and the DD symbol are trademarks of Dolby Laboratories Licensing Corporation.

AIWA Co., Ltd.

Tokyo Japan

Printed in Japan

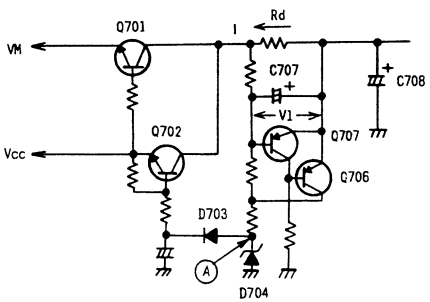
Cautions when servicing

The power circuit in this unit incorporates an overcurrent protector (shut-down circuit). When the overcurrent protector operates, voltages, VM and Vcc are not supplied. Once the overcurrent protector has operated, the power circuit will not be recovered automatically when is turned on, even after the cause of overcurrent is removed. Perform the following procedure to recover the power circuit.

1. Turn the power switch off.
2. Discharge C708 through a resistor of 100Ω or more. (It takes about 5 seconds to discharge C708 through a 100Ω resistor.)

Note : It takes about 60 seconds to discharge if step 2 is not performed.

Operation of Overcurrent Protector



During normal operation (Q707: OFF, Q706: ON)

Since current I flowing to Rd is not large, V1 becomes lower than 0.6V and Q707 turns off. This causes Q706 to turn on, and the voltage at point Ⓐ becomes about 12V, so VM and Vcc are output.

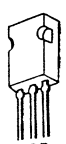
When overcurrent occurs (Q707: ON, Q706: OFF)

When current I rises due to trouble on the VM and Vcc lines, V1 becomes higher than 0.6V and Q707 turns on. This causes Q706 to turn off, and the voltage at point Ⓐ drops abnormally, so VM or Vcc is not output.

2SA933
2SA952
2SA1296
2SC1740
2SC1815
2SC2001
2SD1406

DTA123
DTC114
DTC144

2SK373



2SD2096

■ACCESSORIES／PACKAGE LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	1	*84-792-904-119	INSTRUCTION BOOKLET E	*	1
	2	*87-032-845-119	PLUG SIEMENS(H)		1
	3	*87-034-775-110	CORD PIN,R-237W-1M		2

ELECTRICAL MAIN PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
=== IC ===		
	87-001-440-019	IC,BA15218N
	87-001-143-019	IC,CX20187
	87-001-350-019	IC,HD14052BP
	87-001-198-019	IC,HD14066BP
	87-020-261-019	IC,LA6358S
	87-001-164-019	IC,LB1408
	87-001-334-010	IC,LB9051A
	84-792-606-010	IC,LC6520H-407C
	87-020-758-019	IC,NJM2068SD
=== TRANSISTOR ===		
	89-503-735-019	FET,2SK373GR
	87-026-462-019	TRANSISTOR,2SC1740S,SR
	87-026-463-019	TRANSISTOR,2SA933S,SR
	89-109-521-019	TRANSISTOR,2SA952K
	89-112-965-019	TRANSISTOR,2SA1296GR
	89-318-156-019	TRANSISTOR,2SC1815(BL)
	89-320-011-019	TRANSISTOR,2SC2001K
	89-414-065-019	TRANSISTOR,2SD1406GR
	89-420-962-019	TRANSISTOR,2SD2096E
	87-026-483-019	TRANSISTOR,DTA123JS
	87-026-215-019	TRANSISTOR,DTC114YS
	87-026-218-019	TRANSISTOR,DTC144ES
=== DIODE ===		
	87-001-783-019	DIODE,1N4002-T
	87-020-465-019	DIODE,1SS133
	87-020-123-019	DIODE,DS446
	87-027-676-019	DIODE,ZENER HZ12B3L T
	87-027-393-019	DIODE,ZENER HZ4C2
	87-027-332-019	DIODE,ZENER HZ6B1L
=== MAIN CIRCUIT BOARD SECTION ===		
C101	*87-018-123-019	CAP,CERA-SOL SS 220P
C102	*87-018-123-019	CAP,CERA-SOL SS 220P
C107	*87-010-405-019	CAP,ELECT 10-50V SME
C108	*87-010-405-019	CAP,ELECT 10-50V SME
C109	*87-010-405-019	CAP,ELECT 10-50V SME
C110	*87-010-405-019	CAP,ELECT 10-50V SME
C113	*87-018-132-019	CAP,CERA-SOL SS 2200P
C114	*87-018-132-019	CAP,CERA-SOL SS 2200P
C115	*87-018-134-019	CAP,CERA-SOL SS 0.01
C201	*87-018-121-019	CAP,CERA-SOL SS 150P
C202	*87-018-121-019	CAP,CERA-SOL SS 150P
C203	*87-018-123-019	CAP,CERA-SOL SS 220P
C204	*87-018-123-019	CAP,CERA-SOL SS 220P
C209	*87-010-405-019	CAP,ELECT 10-50V SME
C210	*87-010-405-019	CAP,ELECT 10-50V SME
C211	*87-010-405-019	CAP,ELECT 10-50V SME
C212	*87-010-405-019	CAP,ELECT 10-50V SME
C215	*87-018-134-019	CAP,CERA-SOL SS 0.01
C216	*87-018-134-019	CAP,CERA-SOL SS 0.01
C301	*87-018-123-019	CAP,CERA-SOL SS 220P
C302	*87-018-123-019	CAP,CERA-SOL SS 220P
C303	*87-018-131-019	CAP,CERA-SOL SS 1000P
C304	*87-014-063-019	CAP,PP 1800P
C306	*87-018-134-019	CAP,CERA-SOL SS 0.01
C309	*87-010-406-019	CAP,ELECT 22-50V
C310	*87-010-406-019	CAP,ELECT 22-50V
C401	*87-018-133-019	CAP,CERA-SOL SS 4700P
C402	*87-018-133-019	CAP,CERA-SOL SS 4700P
C403	*87-018-129-019	CAP,CERA-SOL SS 680P
C404	*87-018-129-019	CAP,CERA-SOL SS 680P
C409	*87-010-400-019	CAP,ELECT 0.47-50V SME
C410	*87-010-400-019	CAP,ELECT 0.47-50V SME
C411	*87-010-677-019	CAP,ELECT 0.15-50V SRA
C412	*87-010-677-019	CAP,ELECT 0.15-50V SRA
C415	*87-010-545-019	CAP,ELECT 0.22-50V SME
C416	*87-010-545-019	CAP,ELECT 0.22-50V SME
C425	*87-010-405-019	CAP,ELECT 10-50V SME
C426	*87-010-405-019	CAP,ELECT 10-50V SME
C427	*87-010-404-019	CAP,ELECT 4.7-50V SME
C428	*87-010-404-019	CAP,ELECT 4.7-50V SME
C429	*87-010-402-019	CAP,ELECT 2.2-50V SME
C430	*87-010-402-019	CAP,ELECT 2.2-50V SME
C451	*87-015-241-019	CAP,ELECT 1UF 50V LL
C452	*87-015-241-019	CAP,ELECT 1UF 50V LL
C455	*87-010-402-019	CAP,ELECT 2.2-50V SME
C456	*87-010-402-019	CAP,ELECT 2.2-50V SME
C457	*87-010-263-019	CAP,ELECT 100-10V
C458	*87-010-263-019	CAP,ELECT 100-10V
C459	*87-018-134-019	CAP,CERA-SOL SS 0.01
C501	*87-018-119-019	CAP,CERA-SOL SS 100P
C502	*87-018-119-019	CAP,CERA-SOL SS 100P
C503	*87-018-200-019	CAP,CERA-SOL SS 3900P
C504	*87-018-200-019	CAP,CERA-SOL SS 3900P
C521	*87-010-404-019	CAP,ELECT 4.7-50V SME
C522	*87-010-404-019	CAP,ELECT 4.7-50V SME
C701	*87-010-252-019	CAP,ELECT 1000-6.3V
C702	*87-010-237-019	CAP,ELECT 1000-16SME
C703	*87-010-371-019	CAP,ELECT 470-6.3V
C704	*87-010-263-019	CAP,ELECT 100-10V
C705	*87-010-235-019	CAP,ELECT 470-16
C706	*87-010-101-019	CAP,ELECT 220-16V
C707	*87-010-374-019	CAP,ELECT 47-10V
C708	*87-010-390-019	CAP,ELECT 3300-25V SME
C801	*87-010-401-019	CAP,ELECT 1-50V
C802	*87-010-401-019	CAP,ELECT 1-50V
C803	*87-010-235-019	CAP,ELECT 470-16
C804	*87-010-235-019	CAP,ELECT 470-16
C805	*87-010-382-019	CAP,ELECT 22UF-25V SME
C806	*87-010-402-019	CAP,ELECT 2.2-50V SME
C807	*87-010-382-019	CAP,ELECT 22UF-25V SME
C808	*87-010-402-019	CAP,ELECT 2.2-50V SME
C809	*87-010-235-019	CAP,ELECT 470-16
C810	*87-010-235-019	CAP,ELECT 470-16
C811	*87-010-374-019	CAP,ELECT 47-10V
C812	*87-018-134-019	CAP,CERA-SOL SS 0.01
C814	*87-010-544-019	CAP,ELECT 0.1-50V
CF801	87-030-167-019	CERALOCK CST4.0MHZ
J451	84-790-635-019	JACK,6.3(PHONES)
L301	*81-693-608-019	COIL OSC BIAS 108K
L401	*84-790-623-019	FILTER DOLBY LPF 105K
L402	*84-790-623-019	FILTER DOLBY LPF 105K
L403	*82-231-622-010	COIL 22MMH-J
L404	*82-231-622-010	COIL 22MMH-J
L501	*82-231-622-010	COIL 22MMH-J
L502	*82-231-622-010	COIL 22MMH-J
L503	*87-003-131-019	MICRO INDUCTOR 10MMH
L504	*87-003-131-019	MICRO INDUCTOR 10MMH
L505	*87-003-128-019	MICRO INDUCTOR 5.6MMH
L506	*87-003-128-019	MICRO INDUCTOR 5.6MMH
SFR101	*87-024-168-019	SFR 1K
SFR102	*87-024-168-019	SFR 1K
SFR201	*87-024-168-019	SFR 1K
SFR202	*87-024-168-019	SFR 1K

REF.NO.	PART NO.	DESCRIPTION
SFR301	*87-024-175-019	SFR 47K
SFR302	*87-024-175-019	SFR 47K
SFR501	*87-024-169-019	SFR 2.2K
SFR502	*87-024-169-019	SFR 2.2K
VR301	84-790-632-019	VR,250KB(B.BS FINE NORM.)
VR302	84-790-632-019	VR,250KB(B.BS FINE CRO2)
VR451	84-790-631-019	VR,100KW(BALANCE)
VR452	84-790-630-019	VR,50KA(REC LEVEL)
		☆☆☆ FRONT CIRCUIT BOARD SECTION ☆☆☆
C901	*87-010-405-019	CAP,ELECT 10-50
C902	*87-010-405-019	CAP,ELECT 10-50
C903	*87-010-405-019	CAP,ELECT 10-50
D918	87-001-745-010	LED,SEL1324(PLAY,D1)
D919	87-001-745-010	LED,SEL1324(PLAY,D2)
D920	84-792-624-019	LED,SLH-38[illegible],H15.5(R/R MUTE,D2)
D921	84-792-616-019	LED,SLB25G DOLBY-B)
D922	84-792-615-019	LED,SLB25R DOLBY-C)
D923	84-792-625-019	LED,SLH-38[illegible],H15.5(PAUSE,D2)
D924	84-792-624-019	LED,SLH-38[illegible],H15.5(SYNC DUBB H)
D925	84-792-624-019	LED,SLH-38[illegible],H15.5(SYNC DUBB N)
D926	84-792-617-019	LED,SLB55G DIR◁,D1)
D927	84-792-617-019	LED,SLB55G DIR▷,D1)
D928	84-792-617-019	LED,SLB55G DIR◁,D2)
D929	84-792-617-019	LED,SLB55G DIR▷,D2)
D930	84-792-615-019	LED,SLB25R(-10,L)
D931	84-792-615-019	LED,SLB25R(-6,L)
D932	84-792-615-019	LED,SLB25R(-3,L)
D933	84-792-616-019	LED,SLB25G(-,L)
D934	84-792-616-019	LED,SLB25G(-3,L)
D935	84-792-616-019	LED,SLB25G(-7,L)
D936	84-792-616-019	LED,SLB25G(-20,L)
D937	84-792-615-019	LED,SLB25R(-10,R)
D938	84-792-615-019	LED,SLB25R(-6,R)
D939	84-792-615-019	LED,SLB25R(-3,R)
D940	84-792-616-019	LED,SLB25G(-,R)
D941	84-792-616-019	LED,SLB25G(-3,R)
D942	84-792-616-019	LED,SLB25G(-7,R)
D943	84-792-616-019	LED,SLB25G(-20,R)
D944	84-792-616-019	LED,SLB25G(-∞L)
D945	84-792-616-019	LED,SLB25G(-∞R)
S901	84-790-637-019	SLIDE SW(REV MODE)
S902	84-790-637-019	SLIDE SW(TIMER)
S903	84-790-637-019	SLIDE SW(DOLBY-NR)
S904	87-036-142-019	TACT SW(▷,D1)
S905	87-036-142-019	TACT SW(◁,D1)
S906	87-036-142-019	TACT SW(◁,D2)
S907	87-031-893-010	TACT SW(R/R MUTE,D2)
S908	87-036-142-019	TACT SW(▷,D2)
S909	87-036-142-019	TACT SW(STOP,D1)
S910	87-036-142-019	TACT SW(STOP,D2)
S911	87-031-893-010	TACT SW(PAUSE,D2)
S912	87-036-142-019	TACT SW(SYNC DUBB HIGH)
S913	87-036-142-019	TACT SW(▷▷,D1)
S914	87-036-142-019	TACT SW(▷▷,D2)
S915	87-036-142-019	TACT SW(SYNC DUBB NORM)
S916	87-036-142-019	TACT SW(◁◁,D1)
S917	87-036-142-019	TACT SW(◁◁,D2)
		☆☆☆ JACK CIRCUIT BOARD SECTION ☆☆☆
J452	*87-009-023-019	JACK,PIN(LINE IN/OUT)
		☆☆☆ POWER CIRCUIT BOARD SECTION ☆☆☆

REF.NO.	PART NO.	DESCRIPTION
⚠C1	87-019-113-019	CAP,SPARK KILLER 0.0022
⚠PT1	84-792-609-019	POWER TRANSFORMER H(H)
⚠PT1	84-792-609-019	POWER TRANSFORMER U(U,C)
⚠PT1	84-792-610-019	POWER TRANSFORMER E(E,Z)
⚠PT1	84-792-611-019	POWER TRANSFORMER K(K)
⚠S1	87-036-015-019	PUSH SW(POWER)
⚠S2	87-036-135-019	ROTARY SW(AC VOLTAGE)(H)
		☆☆☆ DECK-1 CIRCUIT BOARD SECTION ☆☆☆
S1	87-036-109-010	PUSH SW(CAST)
S2	87-036-110-010	PUSH SW(CRO2)
SFR1	*87-024-291-019	SFR 4.7K
SFR2	*87-024-291-010	SFR 4.7K
SOL1	*86-535-611-210	SOL X-3 PL(PLAY)
SOL2	*86-535-612-210	SOL X-3 FR(F/R)
		☆☆☆ DECK-2 CIRCUIT BOARD SECTION ☆☆☆
S1	87-036-109-010	PUSH SW(CAST)
S2	87-036-110-010	PUSH SW(CRO2)
S3	87-036-110-010	PUSH SW(REA)
S4	87-036-109-010	PUSH SW(REB)
S5	87-036-109-110	PUSH SW(METAL)
SFR1	*87-024-291-019	SFR 4.7K
SFR2	*87-027-291-019	SFR 4.7K
SOL1	*86-535-611-210	SOL X-3 PL(PLAY)
SOL2	*86-535-612-210	SOL X-3 FR(F/R)
		☆☆☆ SENSOR-1 CIRCUIT BOARD SECTION ☆☆☆
CP1	87-001-367-019	PHOTO,SPI-315(O)CD
		☆☆☆ SENSOR-2 CIRCUIT BOARD SECTION ☆☆☆
CP1	87-001-367-019	PHOTO,SPI-315(O)CD
		☆☆☆ RELAY-1 CIRCUIT BOARD SECTION ☆☆☆
		☆☆☆ RELAY-2 CIRCUIT BOARD SECTION ☆☆☆
		☆☆☆ MISCELLANEOUS ☆☆☆
⚠	87-034-749-019	AC CORD (H) W/PLUG(H)
⚠	87-034-584-019	AC CORD (U)SPT-2(U,C)
⚠	82-187-797-019	AC CORD (E)(E,Z)
⚠	82-187-796-019	AC CORD (BS)(K)
⚠	87-085-184-010	BUSHING AC CORD D(H)
⚠	87-085-189-010	AC CORD BUSHING (SPT-2)(U,C)
⚠	87-085-185-010	BUSHING AC CORD E(E,K,Z)
M1	87-045-273-019	MOTOR,MM16H2 LWC1(D1)
M2	87-045-273-019	MOTOR,MM16H2 LWC1(D2)
PH	87-046-334-010	HEAD,PH 14K(D1)
RPEH	87-04 -335-010	HEAD,RPEH 14K(D2)

IC DESCRIPTION

IC, 6520H-4070

Pin No.	Pin Name	I/O	Description	Remarks
1	O·DIR1	O	DECK 1 direction indicator LED control.	Open drain
2	O·DIR2	O	DECK 2 direction indicator LED control.	
3	I·AUTO1	I	DECK 1 tape end detection input.	Exclusively for inputs
4	I·AUTO2	I	DECK 2 tape end detection input.	
5	I·REMO	I	Serial signal input from remote control.	
6	I·$\overline{HOLD}$	I	Hold input. When the power switch is turned off, this pin goes "L", the low current consumption mode is entered and the tape running direction is stored in memory.	
7	O·$\overline{MOTOR}$	O	Motor on/off control. "L" output turns the motor.	Open drain "L" at initial state
8	O·BIAS	O	Bias oscillation control. "H" output causes oscillations.	
9	O·$\overline{DOLBY}$	O	Dolby NR on/off control. "L" output turns Dolby NR on.	
10	O·$\overline{DOLBY-C}$	O	Dolby B/C NR switching. "L" output switches the Dolby NR to type C with Dolby NR on.	
11	O·PB1	O	DECK 1 play output on/off. Goes "H" when DECK 1 plays the tape. "L" at initial. Only pin 12 goes "H" when both DECKs 1 and 2 enter continuous play.	Open drain "L" at initial state
12	O·PB2	O	DECK 2 play output on/off. Goes "H" when DECK 2 plays the tape.	
13	O·$\overline{C/R\ MUTE}$	O	CUE/REVIEW muting on/off control. Goes "L" during CUE and REVIEW.	
14	O·HSP	O	Motor high/normal-speed control. Switches between PB and REC EQs. "H" output causes the high speed.	
15	O·$\overline{RMT}$	O	REC MUTE control. Goes "H" during REC.	Open drain
16	O·LMT	O	LINE MUTE control. Goes "L" during REC, DECK 1/2 PLAY, CUE and REVIEW.	
17	O·$\overline{REC}$	O	Dolby NR REC/PB switching. Goes "L" during REC.	
18	O·$\overline{HSP}$	O	High speed switching. "L" output causes the high speed.	
19	$\overline{TEST}$	I	Connected to GND.	
20	Vss	–	Connected to GND.	
21	OSC1	–	Clock input 1. A crystal oscillator (4MHz) is connected.	
22	OSC2	–	Clock input 2.	
23	$\overline{RES}$	I	Reset input. "L" input resets the IC.	
24	$\overline{KS0}$	O	D0~D7 KEY SCAN outputs.	Open drain
25	$\overline{KS1}$	O		
26	$\overline{KS2}$	O		
27	$\overline{KS3}$	O		
28	D7	I	$\overline{KS0}$~$\overline{KS3}$ KEY SCAN inputs.	
29	D6	I		
30	D5	I		
31	D4	I		
32	D3	I		
33	D2	I		
34	D1	I		
35	D0	I		

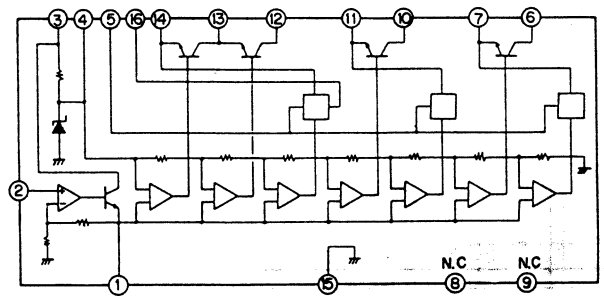
KEY MATRIX

CIRCUIT NAME	INPUT KS0	KS1	KS2	KS3	DISPLAY DISP
D0	CST-2	——	F·PLAY-1	——	PLAY-1
D1	QUICK-2	1ME.1WAY	R·PLAY-1	R·PLAY-2	PLAY-2
D2	——	REC/RMT	REV·MODE ↻	F·PLAY-2	REC-2
D3	CST-1	——	STOP-1	STOP-2	DOLBY-B
D4	QUICK-1	TIMER PLAY	DOLBY-B	DOLBY-C	DOLBY-C
D5	——	TIMER REC	REV·MODE ⇄	PAUSE -2	PAUSE-2
D6	RE-A	HI SPEED DUB	▷▷ 1	▷▷ 2	H/DUB
D7	RE-B	NORMAL SPEED DUB	◁◁ 1	◁◁ 2	N/DUB

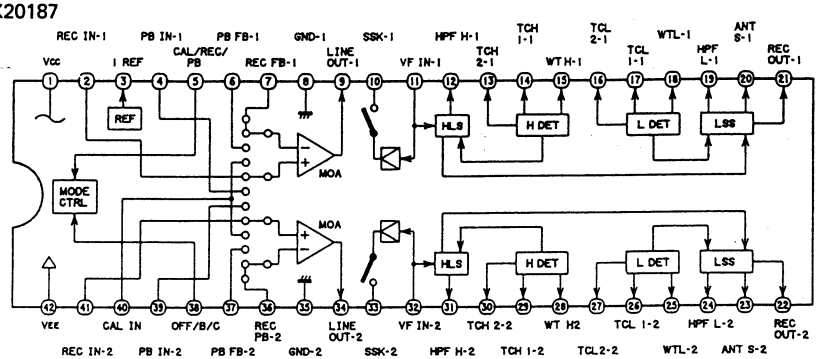
Pin No.	Pin Name	I/O	Description	Remarks
36	$\overline{DISP}$	O	D0~D7 LED SCAN output.	Open drain
37	O·$\overline{SOL-FRP2}$	O	DECK 2 FRP solenoid control.	
38	O·$\overline{SOL-PLAY2}$	O	DECK 2 PLAY solenoid control.	
39	O·$\overline{SOL-FRP1}$	O	DECK 1 FRP solenoid control.	
40	V_{DD}	–	Power supply pin (+5V).	
41	O·$\overline{SOL-PLAY1}$	O	DECK 1 PLAY solenoid control.	Open drain
42	I/O·SYNC	I/O	Unused. Connected to GND.	

IC BLOCK DIAGRAM

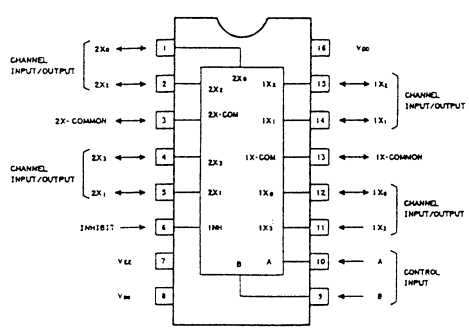
IC, LB1408



IC, CX20187



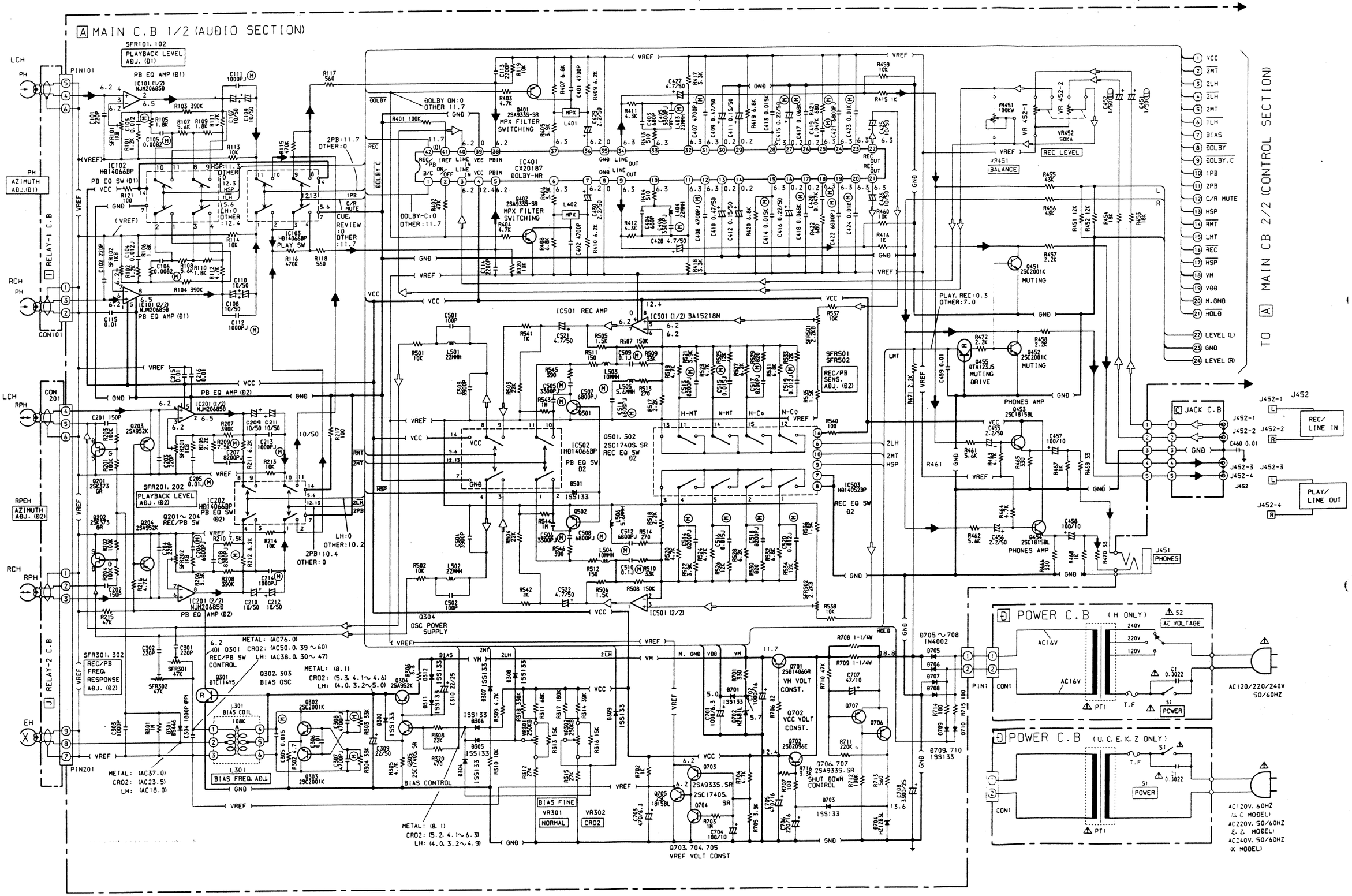
IC, HD14052BP



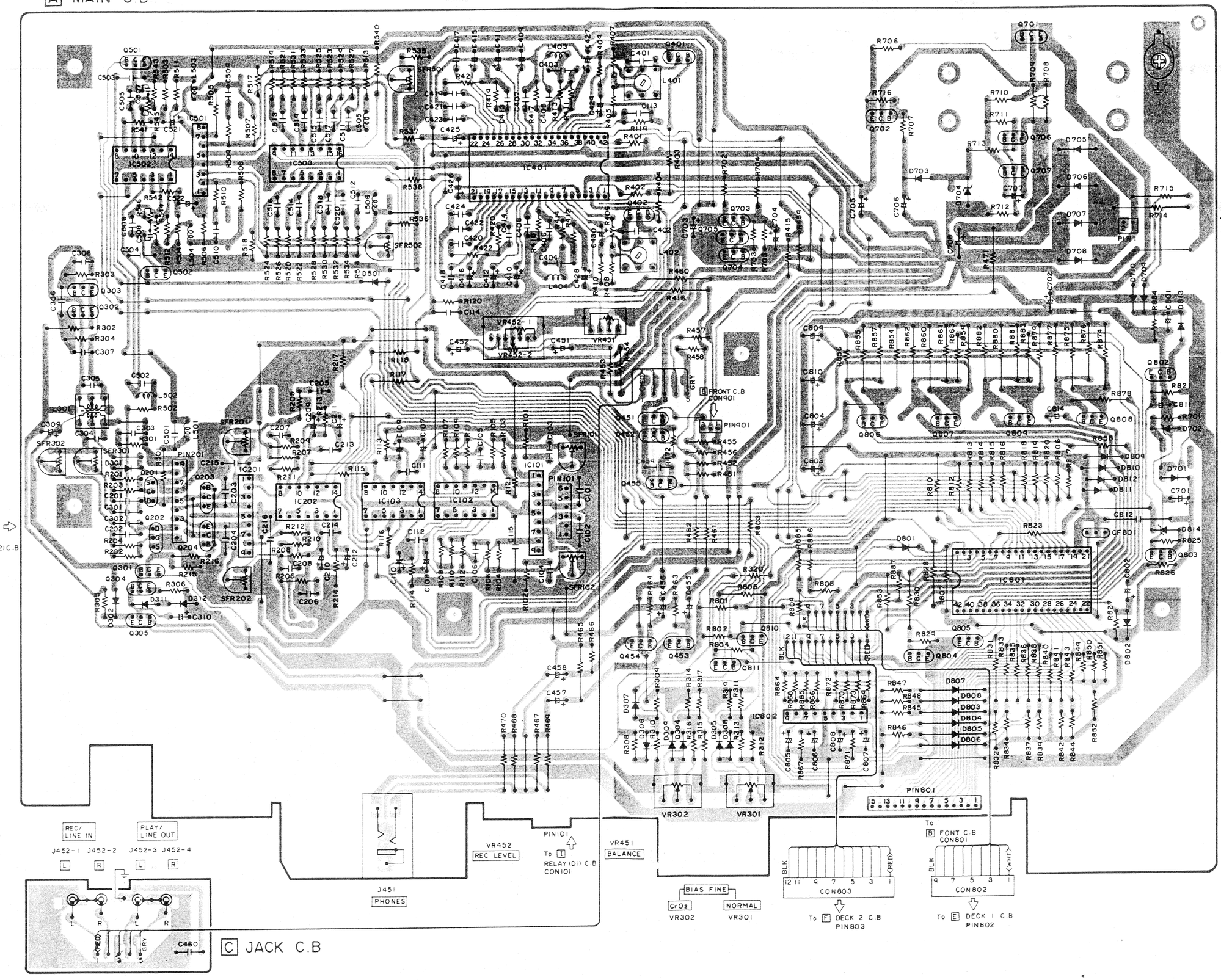
TRUTH TABLE

INHIBIT INPUT	CONTROL INPUT		CHANNEL INPUT/OUTPUT SWITCH OF COMMON TERMINAL			
INHIBIT	B	A	X_0	X_1	X_2	X_3
L	L	L	ON	OFF	OFF	OFF
L	L	H	OFF	ON	OFF	OFF
L	H	L	OFF	OFF	ON	OFF
L	H	H	OFF	OFF	OFF	ON
H	X	X	OFF	OFF	OFF	OFF

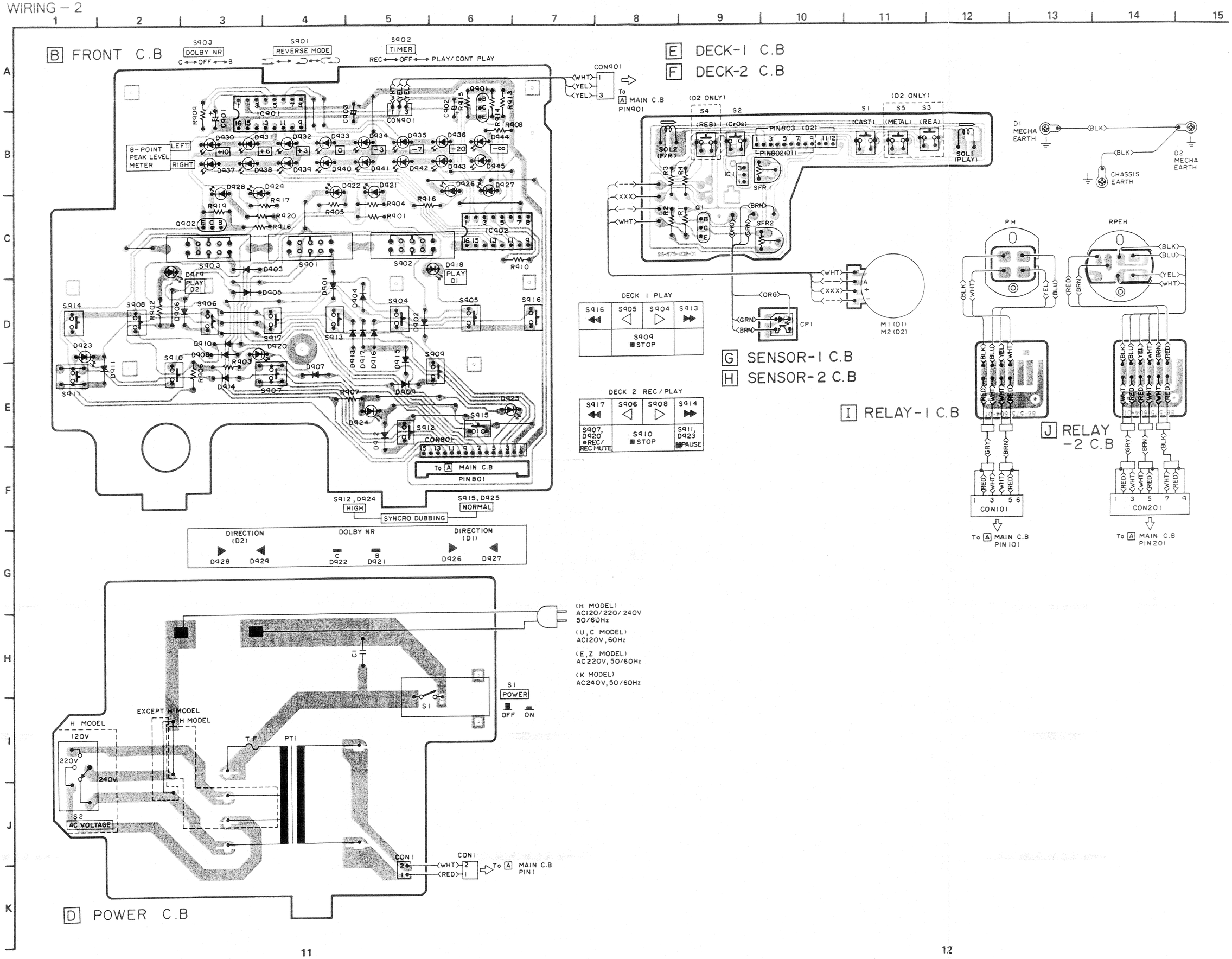
Note 1 X: "H" or "L"

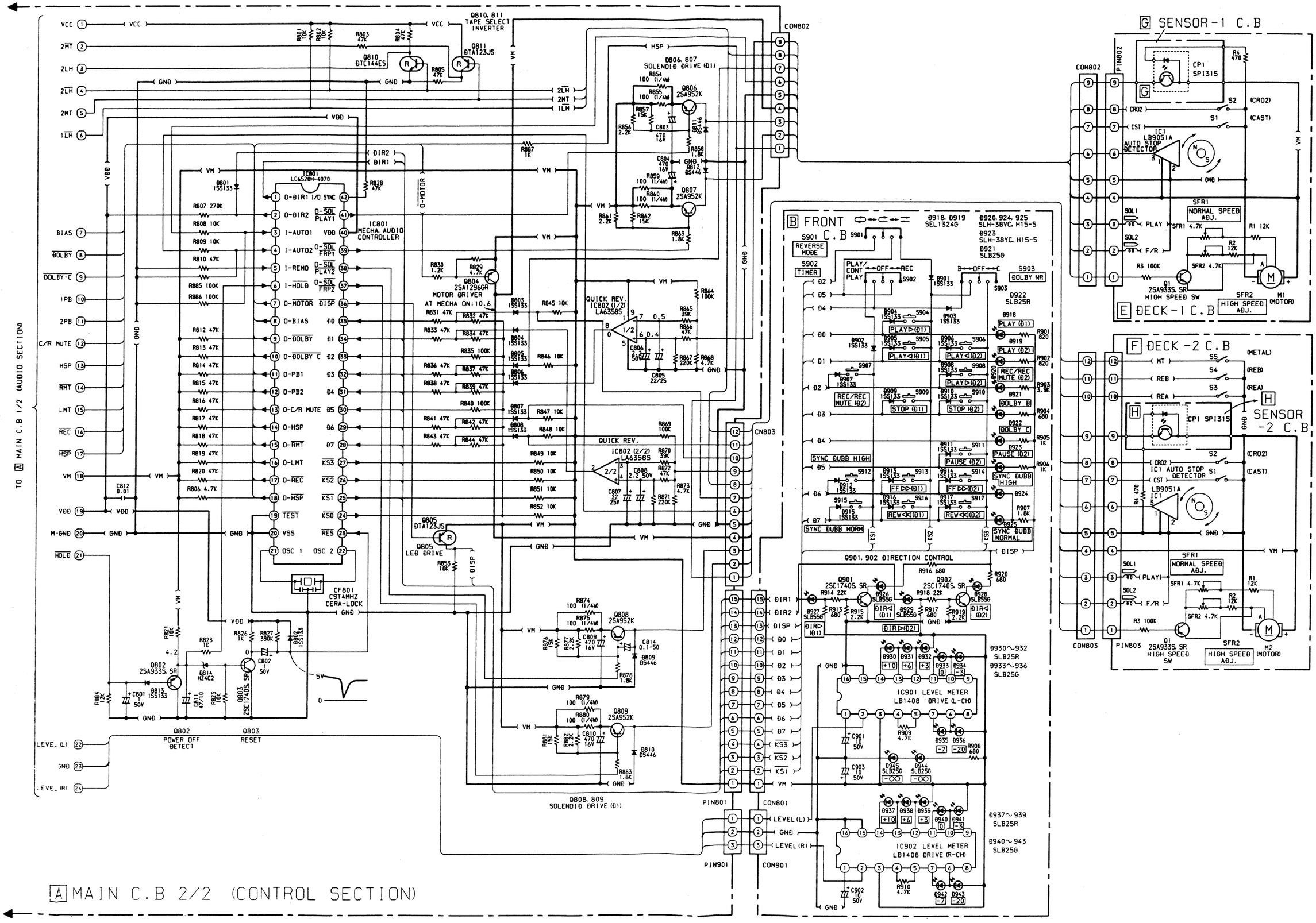

A MAIN C.B 1/2 (AUDIO SECTION)
TO A MAIN CB 2/2 (CONTROL SECTION)
PLAYBACK LEVEL ADJ. (D1)
PB EQ AMP (D1)
IC101 (1/2) NJM2068SD
PB EQ AMP (D2)
IC201 (1/2) NJM2068SD
IC102 HD14066BP
PB EQ SW (D1)
IC103 HD14066BP
PLAY SW
IC202 HD14066BP
PB EQ SW (D2)
IC401 CX20187 DOLBY-NR
Q401 2SA9335-SR MPX FILTER SWITCHING
Q402 2SA9335-SR MPX FILTER SWITCHING
REC LEVEL
BALANCE
IC501 REC AMP
IC501 (1/2) BA15218N
IC501 (2/2)
IC502 HD14066BP PB EQ SW D2
IC503 HD14052BP REC EQ SW D2
Q501. 502 2SC1740S. SR REC EQ SW D2
Q304 OSC POWER SUPPLY
SFR301. 302 REC/PB FREQ. RESPONSE ADJ. (D2)
SFR501 SFR502 REC/PB SENS. ADJ. (D2)
SFR101. 102 PLAYBACK LEVEL ADJ. (D1)
SFR201. 202 PLAYBACK LEVEL ADJ. (D2)
Q201~204 REC/PB SW (D2)
PB EQ SW (D1)
REC/PB SW (D2)
AZIMUTH ADJ. (D1)
AZIMUTH ADJ. (D2)
BIAS OSC
BIAS FREQ. ADJ.
BIAS CONTROL
BIAS FINE
VR301 NORMAL
VR302 CRO2
Q703. 704. 705 VREF VOLT CONST
Q702 VCC VOLT CONST.
Q706. 707 SHUT DOWN CONTROL
MUTING
MUTING DRIVE
PHONES AMP
J451 PHONES
J452 REC/LINE IN
PLAY/LINE OUT
POWER C.B (H ONLY)
POWER C.B (U.C.E.K.Z ONLY)
AC VOLTAGE
AC120/220/240V 50/60HZ
AC120V. 60HZ (U.C MODEL)
AC220V. 50/60HZ (E.Z. MODEL)
AC240V. 50/60HZ (K MODEL)
RELAY-1 C.B
RELAY-2 C.B
JACK C.B
CON1
CON 201
PIN101
PIN201
METAL: (AC76.0)
CRO2: (AC50.0. 39~60)
LH: (AC38.0. 30~47)
METAL: (AC37.0)
CRO2: (AC23.5)
LH: (AC18.0)
METAL: (8.1)
CRO2: (5.3. 4.1~4.6)
LH: (4.0. 3.2~5.0)
METAL: (8. 1)
CRO2: (5.2. 4.1~6.3)
LH: (4.0. 3.2~4.9)
2PB:11.7 OTHER:0
2PB:10.4 OTHER:0
LH:0 OTHER:10.2
DOLBY ON:0 OTHER 11.7
DOLBY-C:0 OTHER:11.7
PLAY. REC:0.3 OTHER:7.0
HSP:11.3 OTHER :0
12.3 HSP
ILH:5.6 ILH:0 OTHER :12.4
CUE. REVIEW :0 OTHER :11.7
C/R MUTE
0705~708 IN4002
0709. 710 1SS133

A MAIN C.B



C JACK C.B


B FRONT C.B
S903 DOLBY NR C ⟷ OFF ⟷ B
S901 REVERSE MODE
S902 TIMER REC ⟷ OFF ⟷ PLAY/CONT PLAY
8-POINT PEAK LEVEL METER LEFT RIGHT
PLAY D1
PLAY D2
CON901
To A MAIN C.B PIN901
CON801
To A MAIN C.B PIN801
S912, D924 HIGH
S915, D925 NORMAL
SYNCRO DUBBING
DIRECTION (D2) D928 D929
DOLBY NR C D922 B D921
DIRECTION (D1) D926 D927
E DECK-1 C.B
F DECK-2 C.B
(D2 ONLY)
S4 S2 S1 S5 S3
(REB) (CrO2) PIN803 (D2) (CAST) (METAL) (REA)
PIN802(D1)
SOL2 (F/R)
SOL1 (PLAY)
IC1
SFR1
SFR2
Q1
DECK 1 PLAY
S916 S905 S904 S913
S909 ■STOP
DECK 2 REC/PLAY
S917 S906 S908 S914
S907, D920 ●REC/REC MUTE
S910 ■STOP
S911, D923 ▮▮PAUSE
G SENSOR-1 C.B
H SENSOR-2 C.B
M1 (D1)
M2 (D2)
CP1
I RELAY-1 C.B
J RELAY -2 C.B
PH
RPEH
CON101
CON201
To A MAIN C.B PIN101
To A MAIN C.B PIN201
D1 MECHA EARTH
D2 MECHA EARTH
CHASSIS EARTH
D POWER C.B
(H MODEL) AC120/220/240V 50/60Hz
(U,C MODEL) AC120V,60Hz
(E,Z MODEL) AC220V,50/60Hz
(K MODEL) AC240V,50/60Hz
S1 POWER OFF ON
EXCEPT H MODEL
H MODEL
120V
220V
240V
S2 AC VOLTAGE
T.F
PT1
CON1
To A MAIN C.B PIN1


TO A MAIN C.B 1/2 (AUDIO SECTION)
A MAIN C.B 2/2 (CONTROL SECTION)
VCC
2MT
2LH
2LH
2MT
1LH
GND
VDD
VM
BIAS
DOLBY
DOLBY-C
1PB
2PB
C/R MUTE
HSP
RMT
LMT
REC
HSP
VM
VDD
M-GND
HOLD
LEVEL (L)
GND
LEVEL (R)
Q810, 811 TAPE SELECT INVERTER
Q810 DTC144ES
Q811 DTA123JS
IC801 LC6520M-4070
IC801 MECHA. AUDIO CONTROLLER
O-DIR1 I/O SYNC
O-DIR2 O-SOL PLAY1
I-AUTO1 VDD
I-AUTO2 O-SOL FRP1
I-REMO O-SOL PLAY2
I-HOLD O-SOL FRP2
O-MOTOR DISP
O-BIAS Ø0
O-DOLBY Ø1
O-DOLBY C Ø2
O-PB1 Ø3
O-PB2 Ø4
O-C/R MUTE Ø5
O-HSP Ø6
O-RMT Ø7
O-LMT KS3
O-REC KS2
O-HSP KS1
TEST KS0
VSS RES
OSC 1 OSC 2
CF801 CST4MHZ CERA-LOCK
Q802 2SA933S SR
POWER OFF DETECT
Q803 2SC1740S SR
RESET
Q804 2SA1296GR MOTOR DRIVER AT MECHA ON: 10.6
Q805 DTA123JS LED DRIVE
Q806, 807 SOLENOID DRIVE (D1)
Q808 2SA952K
Q809 2SA952K
Q808, 809 SOLENOID DRIVE (D1)
QUICK REV. IC802 (1/2) LA6358S
QUICK REV. IC802 (2/2) LA6358S
CON802
CN803
CON801
CON901
PIN801
PIN901
G SENSOR-1 C.B
CP1 SP1315
IC1 LB9051A AUTO STOP DETECTOR
SFR1 NORMAL SPEED ADJ.
SFR2 HIGH SPEED ADJ.
Q1 2SA933S SR HIGH SPEED SW
M1 (MOTOR)
E DECK-1 C.B
F DECK-2 C.B
(METAL)
(REB)
(REA)
(CRO2)
(CAST)
H SENSOR -2 C.B
CON803
PIN803
M2 (MOTOR)
B FRONT
S901 C.B
REVERSE MODE
S902 TIMER
S903 DOLBY NR
Ø918, Ø919 SEL1324G
Ø920, 924, 925 SLH-38VC, H15-5
Ø923 SLH-38YC, H15-5
Ø921 SLB25G
Ø922 SLB25R
PLAY/CONT PLAY
OFF
REC
PLAY (Ø1)
PLAY (Ø2)
REC/REC MUTE (Ø2)
STOP (Ø1)
STOP (Ø2)
PAUSE (Ø2)
SYNC Ø.BB HIGH
SYNC Ø.BB NORM
FF ▷▷ (Ø1)
FF ▷▷ (Ø2)
REW ◁◁ (Ø1)
REW ◁◁ (Ø2)
Q901, 902 DIRECTION CONTROL
Q901 2SC1740S SR
Q902 2SC1740S SR
DIR (Ø1)
DIR (Ø2)
IC901 LEVEL METER LB1408 DRIVE (L-CH)
IC902 LEVEL METER LB1408 DRIVE (R-CH)
Ø930~932 SLB25R
Ø933~936 SLB25G
Ø937~939 SLB25R
Ø940~943 SLB25G

ADJUSTMENT

Initial Settings

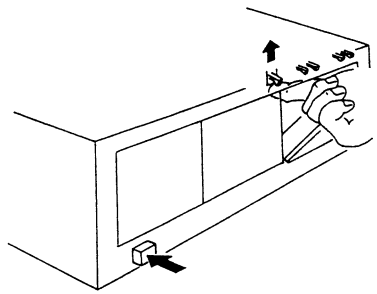
TIMER :	OFF
STSD MODE :	⇀↽
DOLBY NR :	OFF
BIAS FINE (NORMAL) :	Center
BIAS FINE (CrO_2) :	Center
BALANCE :	Center
REC LEVEL :	Center
OVU LEVEL :	1kHz, 370mV

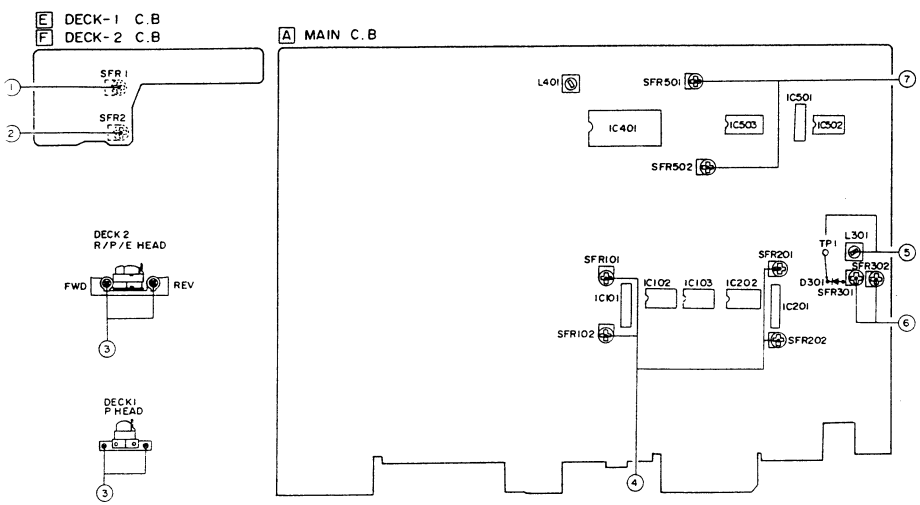
Tape Speed Adjustment

Set the unit to the test mode by the following procedure before performing speed adjustment. Be sure to perform normal speed adjustment first. If high speed adjustment is done first, adjustment will drift.

To set the test mode :

1. Turn the power switch off.
2. Open the cassette lid of DECK 2.
3. Turn the power switch on while pressing the miserasure prevention lever (FWD side) of DECK 2 as shown in the figure.
4. After several seconds, the LED display light showing that the unit has entered the test mode.





Normal Speed Adjustment (DECK 1, DECK 2)

Settings : · Test tape: TTA-100 (TTA-111S)
· Test point: LINE OUT jack
· Adjustment location: SFR1 on E DECK-1 C.B
SFR1 on F DECK-2 C.B

Method : Play the test tape and adjust so that the frequency is 3000Hz.

2. High Speed Adjustment (DECK 1, DECK 2)

Settings : · Test tape: TTA-100 (TTA-111S)
· Test point: LINE OUT jack
· Adjustment location: SFR2 on E DECK-1 C.B
SFR2 on F DECK-2 C.B

Method :

1. Set the unit to the test mode.
2. Load test tape TTA-100 (TTA-111S).
3. Press the PLAY button and then the HIGH button to set the unit to the high speed mode.
4. Adjust SFR2 so that the frequency is 6000Hz.
5. After adjustment is completed, press the HIGH button to set the unit to the normal speed mode.
6. Press the STOP button.
7. Turn the power switch off to release the test mode.

Notes: (1) Keys other than the HIGH button will not operate in the high speed mode.
(2) Do not turn the power switch off in the high speed mode.

3. Azimuth Adjustment (DECK 1, DECK 2)

Settings : · Test tape: TTS-310 (TTA-317E)
· Test point: LINE OUT jack
· Adjustment location: Azimuth adjustment screws (DECK-1, DECK-2, FWD, REV)

Method : Play the 10kHz signal of test tape and adjust so that the output is maximum and the waveforms in the Lissajours are in phase. Then tighten the screw slightly so that the output is within -0.5dB for the maximum value and the waveforms are within 90°.

4. Playback Level Adjustment (DECK 1, DECK 2)

Settings : · Test tape: TTA-200 (TTA-161, TCC-130)
· Test point: LINE OUT jack
· Adjustment location: SFR101 (DECK 1, Lch)
SFR102 (DECK 1, Rch)
SFR201 (DECK 2, Lch)
SFR202 (DECK 2, Rch)

Method : Play the test tape and adjust so that the output level is 520mV±20mV.

5. Bias Frequency Adjustment (DECK 2)

Settings : · Test tape: TTA-620 (TTA-119MP)
· Test point: TP1 (D301 cathode)
· Adjustment location: L301

Method : Set to the record mode and adjust so that the frequency is 108kHz±0.3kHz.

6. REC/PB Frequency Response Adjustment (DECK 2)

Settings : · Test tape: TTA-600 (TTA-119K)
· Input signal: 1kHz/10kHz (LINE IN jack)
· Test point: LINE OUT jack
· Adjustment location: SFR301 (Lch)
SFR302 (Rch)

Method : Apply a 1kHz signal and adjust an attenuator so that the output level is 35mV at LINE OUT jack. Record and play back the 1kHz and 10kHz signals and adjust so that the output level of 10kHz signal is -0.5dB±0.5dB for 1kHz signal.

7. REC/PB Sensitivity Adjustment (DECK 2)

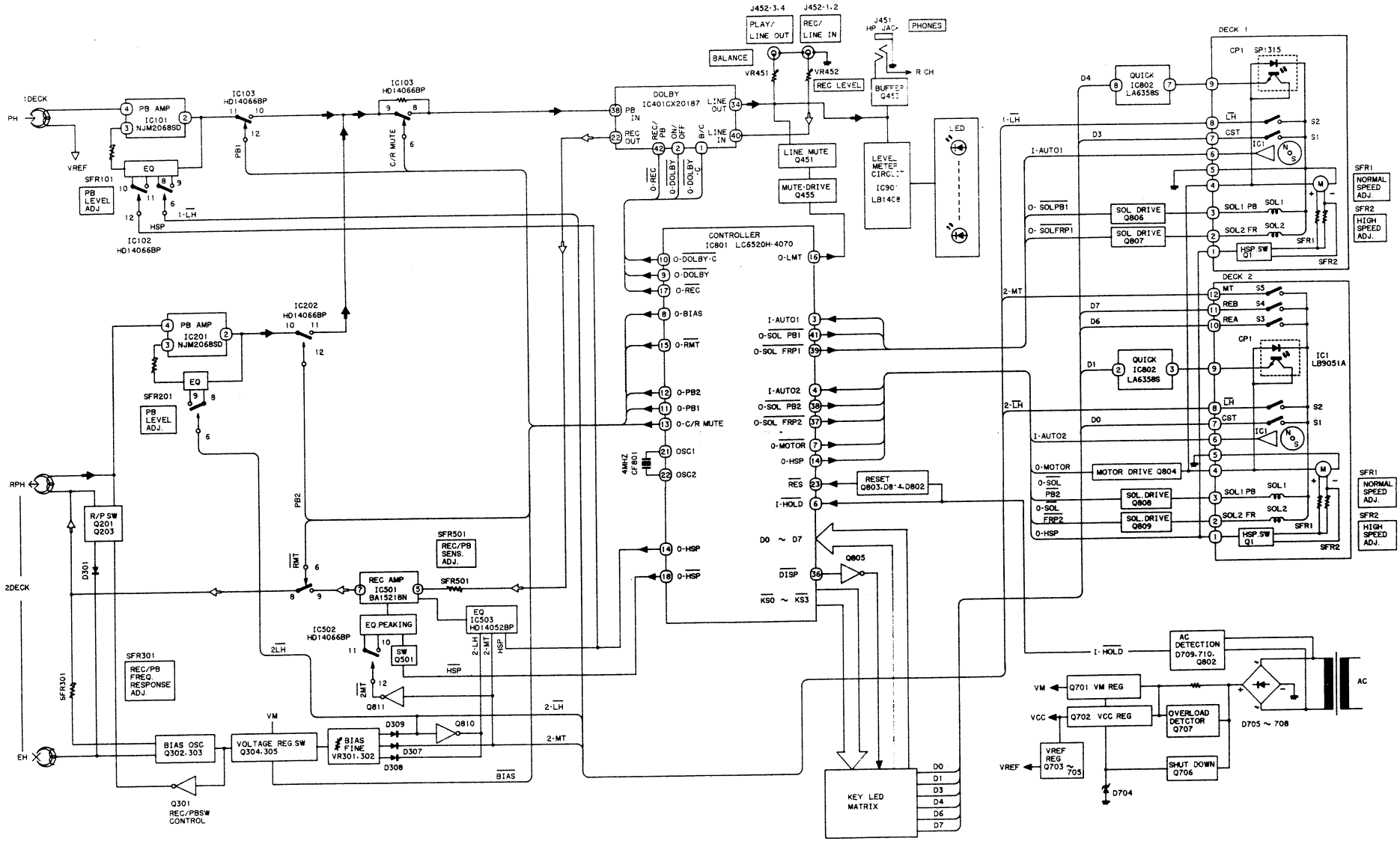
Settings : · Test tape: TTA-600 (TTA-119K)
· Input signal: 1kHz (LINE IN jack)
· Test point: LINE OUT jack
· Adjustment location: SFR501 (DECK 2, Lch)
SFR502 (DECK 2, Rch)

Method : Apply a 1kHz signal and adjust an attenuator so that the output level is 35mV at LINE OUT jack. Record and play back the 1kHz signal and adjust so that the output is -0.4dB±0.2dB.

PRACTICAL SERVICE FIGURE

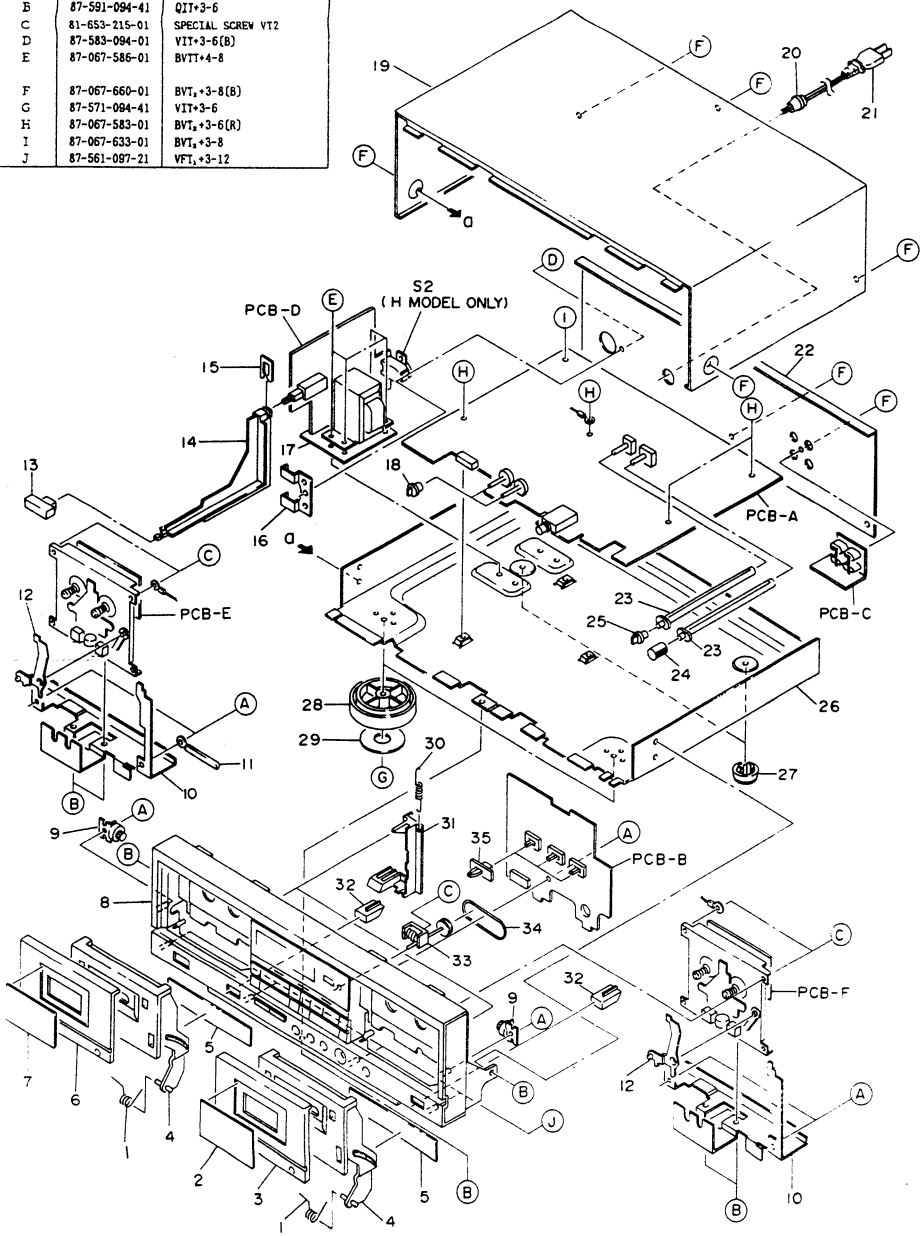
Playback output : TTA-200(TTA-161,TCC-130)	520mV±50mV (LINE OUT)
PB/REC output : TTA-600(TTA-119K)	0VU±1.3dB (LINE OUT) 0VU±1.7dB (At Dubbing, Master tape TTA-200)
PB/REC distortion :	Less than 1.8% (MT,CrO_2,NORM.)
Playback noise : (DIN AUDIO)	Less than 1.1/1.0mV (CrO_2,DOLBY NR B/C) Less than 2.0mV (NORM.,DOLBY NR OFF)
Erase ratio (125Hz) :	More than 60dB
Cross talk (PB) :	More than 65dB
Channel separation (PB):	More than 35dB
Level drift :	Within 1dB
PB/REC S/N ratio : (DIN AUDIO)	More than 45dB (MT,CrO_2,DOLBY NR OFF) More than 43dB (NORM.,DOLBY NR OFF)
(Weighted-A)	More than 49/50dB (MT,CrO_2,DOLBY NR B/C) More than 48/49dB (NORM.,DOLBY NR B/C)
Recording bias frequency:	108kHz
Tape speed : TTA-100(TTA-111S)	3kHz±1.5% (D1,2)
Wow & flutter : (W.R.M.S)	Less than 0.075% (D1,2)
Take-up torque :	30～60 g-cm (D1,2)
F. FWD torque :	80～160 g-cm (D1,2)
Rewind torque :	80～160 g-cm (D1,2)
Back-tension :	1～5 g-cm (D1,2)
Test tapes :	METAL TTA-620 (TTA-119MP) CrO_2 TTA-610 (TTA-119H) NORMAL TTA-600 (TTA-119K)

BLOCK DIAGRAM



EXPLODED VIEW – 1

REF.NO.	PART NO.	DESCRIPTION
A	87-067-578-01	BVT,+3-8
B	87-591-094-41	QIT+3-6
C	81-653-215-01	SPECIAL SCREW VT2
D	87-583-094-01	VIT+3-6(B)
E	87-067-586-01	BVTT+4-8
F	87-067-660-01	BVT,+3-8(B)
G	87-571-094-41	VIT+3-6
H	87-067-583-01	BVT,+3-6(R)
I	87-067-633-01	BVT,+3-8
J	87-561-097-21	VFT,+3-12

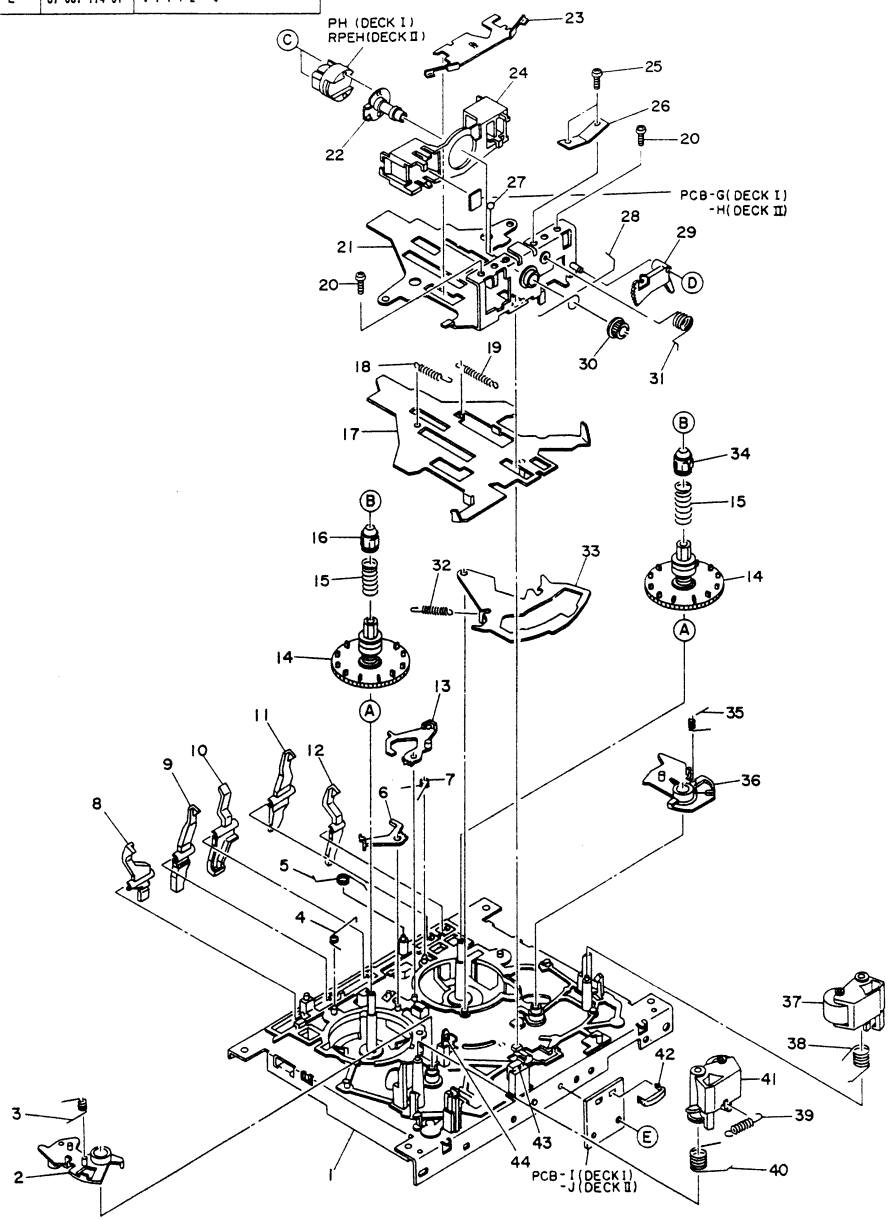


MECHANICAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	1-1	*84-790-208-019	SPRING,EJECT		2
	1-2	*84-790-027-019	WINDOW,CASSETTE BOX 2		1
	1-3	*84-792-018-019	PANEL,CASSETTE BOX 2L	*	1
	1-4	*09-047-508-010	BOX,CASSETTE ASSY(H,C,E,K,Z)	*	2
	1-4	*09-047-509-010	BOX,CASSETTE ASSY(U)	*	2
	1-5	---	SHEET FOAMED MAT 250-25		2
	1-6	*84-792-017-019	PANEL,CASSETTE BOX 1L	*	1
	1-7	*84-791-016-019	WINDOW,CASSETTE BOX 1W		1
	1-8	*09-047-506-010	CABINET,FRONT ASSY(H,C,E,K,Z)	*	1
	1-8	*09-047-507-010	CABINET,FRONT ASSY(U)	*	1
	1-9	*87-063-143-010	OIL-DAMPER 75		2
	1-10	*84-790-207-019	HOLDER,MECHANISM		2
	1-11	---	WIRE BINDER		1
	1-12	*86-535-393-019	LEVER,EJECT STOPPER		2
	1-13	*84-721-023-010	BUTTON,POWER		1
	1-14	*84-790-209-019	ROD,POWER		1
	1-15	*82-385-383-010	STOPPER,ROD		1
	1-16	*83-317-212-019	HOLDER,VS(H)		1
	1-17	*84-790-218-010	PLATE,SHIELD		1
	1-18	*84-424-008-019	KNOB,VOLUME		2
	1-19	*84-790-003-019	CABINET,STEEL		1
	1-20	*87-085-184-010	BUSHING AC CORD(H)		1
	1-20	*87-085-189-010	BUSHING AC CORD(U,C)		1
	1-20	*87-085-185-010	BUSHING AC CORD(E,K,Z)		1
	1-21	*87-034-749-019	AC CORD(H)		
	1-21	*87-034-584-019	AC CORD(U,C)		
	1-21	*82-187-797-019	AC CORD(E,Z)		
	1-21	*82-187-796-019	AC CORD(K)		
	1-22	*84-792-004-019	PANEL,REAR(H)	*	1
	1-22	*84-792-010-019	PANEL,REAR(HJ)	*	1
	1-22	*84-792-005-019	PANEL,REAR(U)	*	1
	1-22	*84-792-006-019	PANEL,REAR(C)	*	1
	1-22	*84-792-007-019	PANEL,REAR(E)	*	1
	1-22	*84-792-008-019	PANEL,REAR(K)	*	1
	1-22	*84-792-009-019	PANEL,REAR(Z)	*	1
	1-23	*84-790-216-019	SHAFT,VOLUME		2
	1-24	*84-790-015-019	KNOB,VOLUME		1
	1-25	*84-790-040-010	KNOB,BALANCE		1
	1-26	---	CHASSIS,9D		1
	1-27	*81-675-010-010	FOOT,H10		2
	1-28	*84-738-022-010	FOOT		2
	1-29	*84-731-027-010	FELT,FOOT		2
	1-30	*84-790-212-019	E-SPRING,ROD		2
	1-31	*84-790-206-019	ROD,EJECT		2
	1-32	*84-790-014-019	BUTTON,EJECT		2
	1-33	*84-792-016-010	COUNTER,19.1	*	1
	1-34	*82-196-240-010	BELT,CIR 45.2		1
	1-35	*84-790-039-019	KNOB,SLIDE N		3

EXPLODED VIEW－2

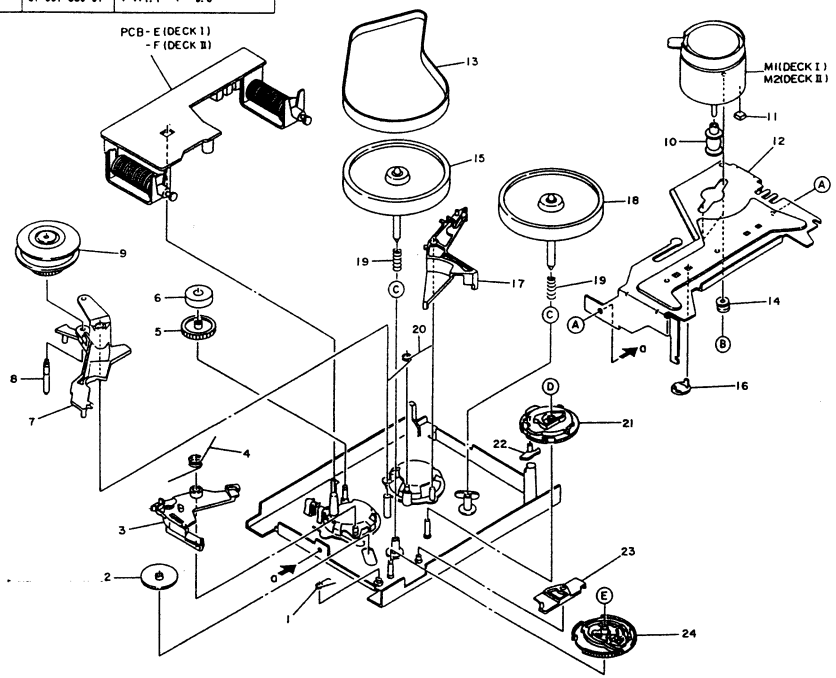
REF. NO.	PART NO.	DESCRIPTION
A	87-067-470-01	PW4.1－6.9－0.13
B	86-524-418-01	V F T 2 +1.4－5
C	87-067-177-01	V +1.6－5.5
D	87-081-489-01	PW1.7－3.5－0.25
E	87-067-174-01	V T T + 2 － 4



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	2-1	★86-575-217-110	MECHANISM CHASSIS ASSY		1
	2-2	★86-535-239-110	LEVER, PLAY R		1
	2-3	★86-535-283-019	T-SPRING, PLAY GEAR R		1
	2-4	★86-535-371-019	T-SPRING, BRAKE R		1
	2-5	★86-575-225-010	T-SPRING, CASSETTE		1
	2-6	★86-535-252-210	LEVER, BRAKE R		1
	2-7	★86-535-370-019	T-SPRING, BRAKE F		1
	2-8	★86-535-247-210	LEVER, REC GUARD A (DECK II)		1
	2-9	★86-535-250-010	LEVER, METAL (DECK II)		1
	2-10	★86-535-249-210	LEVER, CASSETTE SENSOR		1
	2-11	★86-535-254-110	LEVER, CR		1
	2-12	★86-535-248-310	LEVER, REC GUARD B (DECK II)		1
	2-13	★86-535-251-010	LEVER, BRAKE F		1
	2-14	★86-535-240-210	REEL TABLE R ASSY		2
	2-15	★86-535-293-019	C-SPRING, REEL TABLE		2
	2-16	★86-524-218-119	STOPPER, REEL TABLE S		1
	2-17	★86-535-215-310	SLIDE PLATE ASSY		1
	2-18	★86-575-227-010	E-SPRING, LEVER SLIDE		1
	2-19	★86-575-226-010	E-SPRING, CHASSIS HEAD		2
	2-20	★86-575-236-010	S-SCREW, TAPE ADJUSTMENT		2
	2-21	★86-575-209-010	HEAD CHASSIS ASSY		1
	2-22	★86-575-207-010	HEAD HOUSING ASSY		1
	2-23	★86-535-289-010	P-SPRING, HEAD CHASSIS		1
	2-24	★86-575-214-110	GUIDE, TAPE		1
	2-25	★86-575-235-010	S-SCREW, AZIMUTH		2
	2-26	★86-524-300-019	P-SPRING, AZIMUTH		1
	2-27	★87-073-018-019	STEEL BALL1.588		1
	2-28	★86-575-240-010	T-SPRING, GUIDE		1
	2-29	★86-535-246-210	GEAR, SEGMENT		1
	2-30	★86-575-206-010	GEAR, HEAD FR		1
	2-31	★86-535-290-010	T-SPRING, GEAR SEGMENT		1
	2-32	★86-535-284-010	E-SPRING, LEVER DIRECTION		1
	2-33	★86-535-218-210	LEVER DIRECTION ASSY		1
	2-34	★86-524-233-119	STOPPER, REEL TABLE T		1
	2-35	★86-535-282-019	T-SPRING, PLAY GEAR F		1
	2-36	★86-535-238-210	LEVER, PLAY F		1
	2-37	★86-535-226-110	PINCH LEVER F ASSY		1
	2-38	★86-575-222-010	T-SPRING, PINCH F		1
	2-39	★86-535-287-110	E-SPRING, PINCH		1
	2-40	★86-575-223-010	T-SPRING, PINCH R		1
	2-41	86-535-228-110	PINCH LEVER R ASSY		1
	2-42	★86-575-234-010	HOLDER, WIRE		1
	2-43	★86-535-353-010	FELT SQ 5－4－2		1
	2-44	★86-517-353-019	SHEET, QUICK		1

EXPLODED VIEW – 3

REF. NO.	PART NO.	DESCRIPTION
A	87-081-501-01	VTT+2.6-4
B	86-575-243-01	MOTOR SCREW
C	87-067-332-01	PW2.8-4.7-0.13
D	87-081-489-01	PW1.7-3.5-0.25
E	87-067-380-01	PW1.7-7-0.5



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	3-1	★86-535-291-210	T-SPRING, FR CAM		1
	3-2	★86-535-259-310	GEAR, PLAY		1
	3-3	86-535-230-310	LEVER, TRIGGER FR		1
	3-4	★86-535-278-019	T-SPRING, FR		1
	3-5	★86-575-220-010	GEAR, IDLER		1
	3-6	★86-535-614-010	RING, MAGNET		1
	3-7	86-535-233-110	LEVER FR		1
	3-8	86-575-213-010	SHAFT, FR		1
	3-9	★86-535-301-110	SLIP DISK ASSY		1
	3-10	★86-575-237-010	PULLEY, MOTOR B		1
	3-11	★86-575-261-019	G CUSHION 5-5-1.35		1
	3-12	★86-575-218-010	HOLDER, MOTOR		1
	3-13	★86-575-210-110	BELT 1		1
	3-14	★86-575-242-010	G CUSHION DIAL3.9-3.2		2
	3-15	86-575-203-010	FLYWHEEL F ASSY		1
	3-16	★86-535-255-010	RETAINER, FLYWHEEL		2
	3-17	86-535-231-210	LEVER, TRIGGER PLAY		1
	3-18	86-575-201-010	FLYWHEEL R ASSY		1
	3-19	★86-535-288-019	C-SPRING, FLYWHEEL		1
	3-20	★86-535-279-010	T-SPRING, MAIN		1
	3-21	★86-535-260-310	CAM, MAIN		1
	3-22	★86-535-308-110	LEVER, CHANGE		1
	3-23	★86-575-229-010	LEVER, PAUSE B		1
	3-24	★86-535-261-310	CAM, FRP		1

SPRING APPLICATION POSITION